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The Alternative Technology Association (ATA) welcomes the opportunity to respond to the AEMC's draft report on the Distribution Market Model.

Founded 37 years ago, the ATA is a national, not-for-profit organisation whose more than 6,000 members are (mostly residential) energy consumers.

Our extensive experience in energy policy and markets informs our advocacy and research which, amplified by our close collaboration with fellow members of the National Consumer Roundtable on Energy, makes the ATA an important voice for energy consumers Australia-wide.

ATA has a uniquely twofold perspective as a consumer advocate. With the continuing support of the Energy Consumers Australia (and formerly the Consumer Advocacy Panel) we represent all small energy consumers in advocacy that seeks to improve energy affordability and the structure and operation of the National Energy Market (NEM). Additionally, we speak with authority on behalf of the growing portion of the consumer base that has an interest in demand-side participation.

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Overview

The ATA supports the AEMC's work on the Distribution Market Model. As the energy system transitions toward a zero-emissions future, distributed energy resources (DER) will play an increasingly important role in energy supply. Accompanying this will be a changing role for distribution networks to become platforms for a much broader and more diverse energy and energy services market than we currently have.

Responses to questions

Question 1: Do stakeholders consider that there are any other barriers to the development and implementation of cost-reflective network tariffs? How material are these barriers? Are there other means for them to be addressed?

The ATA supports the further development and implementation of more cost-reflective network tariffs. This will underpin a distribution market platform by balancing the value of services provided by DER owners against any additional costs imposed, encouraging efficient investment and behaviour.

The recent experience of tariff reform in the NEM has highlighted a number of potential barriers to realising the goal of cost-reflective network pricing. Some of this has been due to lack of

clarity as to whether efficient cost allocation or behaviour change is the primary goal. While these are intricately interconnected, they have different implications for implementation. For example: if retail tariffs incorporate the underlying network cost but do not communicate the drivers of those costs, costs will be allocated effectively but an appropriate behavioural response may not be encouraged.

The draft report notes that “jurisdictional obligations that seek to meet a number of social and equity objectives”¹ are a barrier inasmuch as they distort price signals. This is objectively accurate, but must be seen in the context of the role and responsibility of governments in pursuing social and environmental objectives separate from and additional to the AEMC’s role in rule-making in accordance with the NEO.² It also must be recognised that any feasible approach to cost-reflective pricing can only be approximate; the challenge is to reflect costs sufficiently to encourage appropriate investment and behaviour to best serve the long-term interests of consumers while providing the essential service of an accessible energy supply.

Other barriers

Approach to cost-reflective pricing and tariff design

ATA’s experience in the tariff reform process suggests that one barrier to meeting the goals of tariff reform has been a lack of rigour in the development of cost-reflective tariffs. Long-run marginal cost has been understood as the impact of energy users’ demand on future augmentation costs, but tariff designs have not generally been oriented to the highest network peaks, which drive most augmentation spending. Instead, most demand tariffs have targeted users’ highest monthly peak demand, whether or not it coincides with networks’ monthly peak or top annual peaks. (Conversely, some networks have avoided demand tariffs on the basis that they do not face capacity limits, due to past overbuilding). Analysis by the University of New South Wales, the Australian PV Institute, and IT Power (Australia) clearly shows that current demand tariffs do not reflect LRMC, and that tariffs based on coincident demand (with no minimum demand charge) would be much more cost-reflective.³

Additionally, analysis of DNSP price proposals shows that while augmentation costs are significant, the bulk of the network cost faced by users comprises maintenance, operations, and the sunk cost. Since networks are built to meet expected demand – and demand is created collectively – the asset share of each user is likely to align with their average peak demand during daily network peak periods. Truly cost-reflective network tariffs need to fairly allocate sunk and ongoing costs as well as future costs.

Consumer understanding of how tariffs work

If cost-reflective network pricing is going to influence consumer behaviour and investment, consumers need to understand how it works. In our experience, many consumers don’t know what types of tariffs they’re on and don’t know how much different appliances contribute to their overall consumption. Demand is a more complicated concept than consumption, and if people are going to respond by either making different decisions or engaging third parties to

¹ AEMC 2017, *Distribution Market Model, Draft report*, 6 June 2017, Sydney: p. 52

² Noted in AEMC 2017, *Distribution Market Model, Draft report*, 6 June 2017, Sydney: p. 8; and discussed more fully in AEMC *Applying the energy objectives: A guide for stakeholders*, 1 December 2016.

³ Rob Passey & Navid Haghdaei, *(Re)designing Cost-Reflective Tariffs*, presentation to APVI Workshop “Cost-Reflective Pricing – some different perspectives” Sydney, 1st June 2016, <http://apvi.org.au/wp-content/uploads/2016/06/Rob-Passey-APVI-UNSW-ITPower.pdf>

manage their usage, they could be vulnerable to price shocks or predatory marketing of energy services if they don't understand what they need to do.

This barrier can be lowered somewhat by:

- ensuring there are accessible and simple tools available for consumers to compare the price outcomes of cost-reflective tariffs against their current tariffs
- ensuring simple access to energy data so consumers can make use such tools
- allowing consumers to opt-out of cost-reflective tariffs during a transitional period
- provision of independent educational material explaining:
 - the concept of demand and how it differs from consumption
 - typical demand of common appliances
 - how to access energy data and use the simple tools described above.

A strategy to manage cost impacts on vulnerable consumers

Energy pricing is a potent political issue at the present time and governments want to be seen to being part of the solution. Cost-reflective network tariffs will increase energy costs for some consumers, and some of those will be vulnerable consumers. Networks, institutions (such as AEMC) and governments will need to be upfront about changing costs, give clear information on who the winners and losers will be, and work together to develop a social policy response to manage the impact on vulnerable consumers. None of this was clear or detailed enough during the TSS development process in Victoria on 2015–16, and this is probably why many consumer advocates were lukewarm or hostile to the new tariffs, leading to government imposition of an opt-in requirement.

Question 2: Do stakeholders consider that there are any 'missing markets' or 'missing prices' beyond those that will be implemented through cost-reflective network tariffs? If so, what are these?

As currently designed, cost-reflective network tariffs only reflect one part of network costs. As discussed above, more cost-reflective tariffs could better allocate the full cost of the network to its users. Additionally, a comprehensive and effective market for a range of grid support services – covering, for example, voltage management, power quality, system restart, congestion alleviation, and general network support – would bring us closer to fully capturing the value of distributed energy resources (DER), and clarify the degree to which these services offset any additional costs associated with DER.

Question 3: Do stakeholders consider that an open access regime will continue to be appropriate in an environment of increasing uptake of distributed energy resources and more constraints on distribution networks? If not, what principles or considerations should be taken into account in determining whether a different access regime is more appropriate?

This report and much related work is only just beginning to explore the value to networks and the broader energy system of DER. It seems clear that there is scope in the near future for a market in grid and wholesale energy services that could remit value to DER owners, making it feasible to also send granular price signals to help manage any adverse impacts of DER on the network when and where they occur. This will help manage the congestion impacts raised in the draft report. Additionally, new inverter technology is making it more practicable for networks to manage imports from DER to help avoid congestion problems. These all offer ways to manage

network impacts of DER and should be explored fully before resorting to the heavy-handed step of overturning the principle of open access.

Question 4: Is there support for the Commission's proposal that the deletion of clause 6.1.4 of the NER be explored?

In discussing this question, it is important to be clear about what constitutes Distribution Use of System (DUOS) charges. DUOS has traditionally been charged to energy users for the energy they use, irrespective of where it has come from – a distant power station, a medium-scale DER, or their neighbour's solar panels. Charging DUOS to some generators as well as all users raises the risk of double-charging for DER; while if users' DUOS charges are to be discounted according to the share of their supply sourced from DER, other factors would also need to be considered – including the extent of the network traversed between source and user (which would lower charges for energy use derived from DER).

On the other hand, there has been some discussion of additional costs imposed on networks by injections from DER where there are issues of congestion or power quality exacerbated by such injections. It is charging for these additional costs that we discuss here.

ATA does not support deletion of clause 6.1.4 of the NER. However we *do* support exploration of how to more fully and fairly reflect the costs and benefits of distributed energy resources to the distribution network, as part of a suite of changes to enable participation of DER in wholesale and network support markets. This is essential to having an efficient and effective distribution network-based market platform that is accessible by small users.

The draft report refers to the Essential Services Commission of Victoria's (ESCV) recent work to determine the network value of distributed generation. In particular, it notes the ESCV's conclusion that:

Because of the characteristics of network value, a broad-based feed-in tariff is unlikely to be an appropriate mechanism to support the participation of small-scale distributed generation in a market for grid services. The value of the grid services that distributed generation can provide is too variable - between locations, across times and between years - to be well suited for remuneration via a broad-based tariff.⁴

This was stated by the ESCV in the context of making payments to DER owners for the value of grid services they provide; but the AEMC draft report cites it when discussing payments *by* DER owners in addition to connection charges. While the Distribution Market Model draft report discusses both network costs and benefits of DER, it seems to focus much more on the former than the latter. The ESCV work – based on analysis of interval data from substations and customer meters – suggests that benefits to the network were much more significant than costs. This is not to say that DER does not sometimes impose additional costs on the network, or that there is no rationale for charging DER owners for such costs; rather, that the framework for sending price signals to DER owners must reflect and convey the value of benefits as well as costs.

The ESCV report⁵ notes numerous ways DER (including controllable energy storage) and demand management benefits distribution networks. Most significantly by:

- reducing unserved energy; and

⁴ AEMC 2017, Distribution Market Model, Draft report, 6 June 2017, Sydney: p. 59

⁵ Essential Services Commission 2017, *The Network Value of Distributed Generation: Distributed Generation Inquiry Stage 2 Final Report*, February 2017

- relieving network congestion.

These benefits are what the ESCV proposed be valued and paid for via a grid services market. However ESCV also identified other network benefits of DER that it considered immaterial or not readily attributable to specific DER to justify inclusion at this time in such a market:

- providing ancillary services (frequency control, system restart);
- network support;
- managing voltage regulation and power quality; and
- improving the cyclic ratings of substation transformers.

As the ATA noted in its submission to the ESCV's draft report, changes in technology, the generation mix, and network characteristics are likely to increase both the materiality of these services, and the practicality of transacting them in the market. In particular:

- *as the grid's generation mix continues to diversify, these services will be required more often and on a larger scale;*
- *as technology continues to evolve, household-scale energy equipment will become more powerful and capable; and*
- *as aggregation of small loads and generators becomes more practicable, third party aggregators will be more able to provide grid services at a greater scale and with greater firmness than is currently possible.*⁶

Thus a grid services market must be able to expand to incorporate these services also.

The value of these services is dependent on location and time. An effective and efficient grid services market will be need to allow these services to be dynamically valued and transacted with DER owners.

As discussed elsewhere in the draft report (and in documents pertaining to many related projects), the overwhelming rationale for more cost-reflective network charges is to signal efficient investment and behaviour to energy users. Cost-reflective tariffs are a fundamental building block of this. For additional signalling beyond what tariffs can provide, DER owners need access to relevant markets (for grid service, wholesale market services, and other services), and access to customer-facing new and emerging energy services (tariff arbitrage, storage control, etc.) in order to make decisions based on the economics of the payments they could receive and any charges they might face. Changes to market structures and rules will be required to enable some of these markets to be realised.

If the network and broader benefits of specific DER cannot be valued and transacted, charging DER owners more granularly for costs imposed on the network is a perverse outcome that blunts the signals for efficient investment in and deployment of DER. Thus, deletion of clause 6.1.4 should only be considered:

- in the context of the addition of new rules that enable recognition of and remuneration for benefits as well as costs;
- in conjunction with reviews of connection charges, capacity and export limits, and other mechanisms currently used by networks as blunt instruments to manage the impact of DER on their infrastructure, in order to avoid doubly penalising DER owners; and
- with any charges based on transparent information about costs imposed on networks and with regulatory oversight.

⁶ ATA submission to *The Network Value of Distributed Generation Draft Report* (December 2016)

It should also be recognised that market mechanisms to signal the value of costs of small-scale DER introduce transaction costs that may considerably offset value-signalling. Going down this path should only occur if it compares favourably to alternative approaches, following:

- robust assessment of the costs and benefits of DER to distribution networks, and the materiality of any net costs; and
- consideration of simpler ways to mitigate material impacts of DER on networks (e.g. dynamic export limiting where and when needed, via inverters compliant with the new Australian Standard *AS4777.2:2015 Grid connection of energy systems via inverters – Inverter requirements*).

Question 6: Do stakeholders see value in the AEMC (or other party) reviewing the technical requirements that DNSPs apply to the connection of distributed energy resources?

Yes. National consistency would benefit all stakeholders by introducing more certainty, providing transparency in connection requirements, and providing a solid and predictable platform for markets that DER owners may participate in.

Conclusion

Thank you for the opportunity to respond to the Distribution Market Model draft report . If you wish to discuss anything raised in this submission further, please contact Dean Lombard. Senior Energy Analyst, at dean@ata.org.au or on (03) 9631 5418.